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Highlights from the High Altitude Water Cherenkov Observatory

Wednesday 5 August 2015 17:30 (30 minutes)

The High Altitude Water Cherenkov (HAWC) Gamma-Ray Observatory was completed this year at a 4100-meter site on the flank of the Sierra Negra volcano in Mexico. HAWC is a water Cherenkov ground array with the capability to distinguish 100 GeV - 100 TeV gamma rays from the hadronic cosmic-ray background. HAWC is uniquely suited to study extremely high energy cosmic-ray sources, search for regions of extended gamma-ray emission, and to identify transient phenomena. HAWC will play a key role in triggering multi-wavelength and multi-messenger studies of active galaxies, gamma-ray bursts, supernova remnants and pulsar wind nebulae. Observation of TeV photons also provide unique tests for a number of fundamental physics phenomena including dark matter annihilation and primordial black hole evaporation. Operation began mid-2013 with the partially-completed detector. Multi-TeV emission from the Galactic Plane is clearly seen in the first year of operation, confirming a number of known TeV sources, and a number of AGN have been observed. This talk will discuss the science of HAWC, summarize the status of the experiment, and highlight first results from analysis of the data.

Collaboration

HAWC

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